



Title : Towards Sustainable Glass Manufacturing: Decarbonization Efforts and Operating Experience with Electric Melting Furnaces

Glass manufacturing is one of the most energy-intensive industrial processes and faces increasing pressure to reduce greenhouse gas emissions and achieve carbon neutrality while maintaining stable and long-term operations.

Among the available technologies, electric melting furnaces are attracting considerable attention because they have the potential to significantly reduce direct CO₂ emissions when powered by low-carbon electricity. However, successful implementation requires more than simply replacing conventional combustion systems. Technical challenges related to furnace design, glass quality, operating stability, electrical infrastructure, and energy cost must also be addressed.

This presentation reviews current challenges and practical decarbonization strategies in the glass industry, drawing on more than thirty years of experience at Nippon Electric Glass (NEG).

It then shares practical operating experience gained from electric melting furnaces, including both the benefits achieved and the challenges encountered during commercial operation. Finally, the presentation discusses key considerations for expanding electric melting technology and highlights practical solutions for balancing carbon reduction, operational reliability, and economic feasibility in the transition toward sustainable glass manufacturing.